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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/833,566      | 04/13/2001  | Masao Washizu        | 010516              | 2583             |

23850 7590 09/25/2003

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EXAMINER

OLSEN, KAJ K

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1753

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/833,566

Applicant(s)

WASHIZU ET AL.

Examiner

Kaj Olsen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 and 22-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-21, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 15-21, 27 and 28 in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

2. Figures 6-11 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see Brief Description of the Drawings on page 17). See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).
4. The disclosure is objected to because of the following informalities: Although the figures are shown for example as 6A, 6B, 7A, and 7B, the specification (in particular the Brief Description of the Drawings) only refer to these figure as figures 6 and 7. Reference to figures 8-11 and 16 are similarly indefinite. Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 15-21, 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

8. In addition, even though the claims are presumably drawn to a method of separating particles, none of the claims are appropriately written as method for separating or detecting particles. Rather they are drawn to a “separation method” or a “detection method”. Moreover all the limitations of these claims utilize passive limitations. For example, in claim 15, applicant states that a liquid is “subjected to influence by a negative dielectric force”. Is applicant positively reciting a step of subjecting a substance to a negative dielectric force? Method claims should be a clear recitation of the step or steps drawn to the performing of the invention. Numerous other instances of similarly passive can be found throughout the elected claims.

9. Claim 15 is incomplete because it is drawn presumably to a method of separating particles, but the claim does not specify any particular step of steps of separating particles.

10. In claim 15, “said electrode” lacks antecedent basis. In addition, it is unclear if “an electrode” is the same “said electrode” specified earlier.

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11. In claim 15, it is unclear how to interpret “an electrode having a vacant space therein”.

What is “therein” referring to? Is it the electrode?

12. In claim 15, it is entirely unclear how to interpret “or above the vacant space or in the vicinity thereof”. What is above the vacant space? Is it the electrode? What is “thereof”

referring to?

13. In claim 15, the limitation “or is caused to flow above or below thereof” is unclear. What is caused to flow and what is thereof referring to?

14. In claim 16, it appears “composes” should be --comprises--.

15. In claim 16, the limitation concerning the lid providing a gap is awkwardly worded.

16. In claim 16, what would constitute a communication to the electrode?

17. In claims 17, 18, 20 and 21, applicant utilizes double quotation marks to define aspects of the invention. It is unclear why applicant is utilizing these, and whether the terms within the quotation marks are part of the claimed invention.

18. In claim 19, the passive language and the use of “said electrode” and “an electrode” after it are indefinite for the reasons set forth above for claim 15. Similarly, the use of “therein” and “thereof” are confusing for the same reasons set forth above for claim 15.

19. In claims 27 and 28, it is unclear how to interpret “the places among the electrodes in lower level than the electrode level”. First, what is “the places” referring to? Second, how is the plural “the electrodes” is meant to be interpreted when the applicant has only set forth a single electrode. Third, what does the applicant mean by the grammatically awkward “in lower level”? Fourth, what is “the electrode level”? Applicant hasn’t set forth any electrode level.

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20. Claims 27 and 28 refer to the enhancing the collecting ability of the substances, but the claims don't specify anything about the method being used to collect substances. How is this limitation meant to be interpreted?

***Claim Rejections - 35 USC § 102***

21. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

22. Claims 15 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Pethig et al (USP 5,814,200).

23. With respect to claim 15 as best understood, Pethig discloses a method for separating substances contained in a liquid where the fluid is subjected to negative dielectrophoretic force (col. 19, lines 44-65). With respect to the claimed vacant space (see 112 rejection above), any number of the spaces between the electrodes would read on the claimed vacant space (e.g. see fig. 6). Because the electrode arrangement of Pethig is inherently for the concentrating of substances any of the vacant spaces having potential plateaus shown in fig. 15a, 15b, 16a, 16b, 18a, or 18b would be vacant spaces that allows particles to flow so that the substances land in the potential wells and concentrate the substances.

24. With respect to claim 19 as best understood (those limitations not covered above), the particle of Pethig are optically detected (col. 20, lines 7-19).

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25. Claims 27 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Fiedler et al (USP 5,948,328).

26. With respect to the claims as best understood, Fiedler discloses a method of separating particles where a channel 39 resides near a series of electrodes (32, 34). The channel defines a place that is at a lower level than that of the electrode level, and this lower level thereby inherently constitute a way to enhance the collecting ability for substances.

***Claim Rejections - 35 USC § 103***

27. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

28. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

29. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pethig '200 in view of Benecke et al (USP 6,149,789).

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30. Pethig set forth all the limitations of the claim, but did not explicitly disclose the use of a lid for defining a gap between the electrodes. Benecke discloses in an alternate dielectrophoresis device the use of a cover (i.e. a lid) over the electrode assembly (col. 5, lines 15-21). Said lid would prevent contamination of the device with unwanted sample. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Benecke for the method of Pethig in order to prevent sample contamination.

31. Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pethig in view of Benecke as applied to claim 16 above, and further in view of Parton et al (USP 5,993,631).

32. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pethig in view of Parton.

33. Pethig (or Pethig in view of Benecke) set forth all the limitations of the claim, but did not explicitly disclose the set forth complex. Parton teaches in an alternate dielectrophoretic device that the substance being analyzed can be either cells (i.e. what Pethig analyzed) or complexes of particles reading on the claimed substances of the claims (col. 3, line 1 through col. 4, line 64). The later configuration allows one to extend the dielectrophoresis device to, as an example, particular nucleic acid sequences. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Parton for the method of Pethig (or Pethig and Benecke) in order to extend the utility of the given dielectrophoretic method to other biological materials of interest.



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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (703) 305-0506. The examiner can normally be reached on Monday through Thursday from 7:00 AM-4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322.

When filing a fax in Group 1700, please indicate in the header "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of this application. This will expedite processing of your papers. The fax number for regular communications is (703) 305-3599 and the fax number for after-final communications is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0661.



Kaj K. Olsen  
Patent Examiner  
AU 1753  
September 22, 2003